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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules Concerning Maritime Communications	)	Docket PR 92-257
	)	Further Notice of Proposed Rulemaking
	)	

To: The Commission

DOCKET FILE COPY ORIGINAL

COMMENTS
OF
MOBILE MARINE RADIO, INC.

Martin W. Bercovici
Keller and Heckman
1001 G Street, N.W. Suite 500W
Washington, D.C. 20001-4545
(202) 434-4200

Attorney for
Mobile Marine Radio, Inc.

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SUMMARY

Mobile Marine Radio, Inc. (MMR) supports the interjection of flexibility into the Maritime Service regulations. The changes contemplated in this proceeding provide the opportunity to maintain the viability of the maritime HF, MF and VHF services. Issues of particular significance concern DSC, automatic interconnection with PSTN, NB-DP, VHF public coast station licensing, and operator licensing.

MMR believes the Commission should standardize on digital selective calling for VHF maritime service, and should encourage voluntary equipping with DSC in the MF and HF services. DSC is the only common protocol for signalling, and its implementation will serve to enhance communications for the maritime user community.

Automatic interconnection with the public switched telephone network is to be encouraged. Notwithstanding, the Commission must enforce the discipline of good operating practices and positive control over station operation for those VHF public coast station operators who utilize pre-recorded station announcements to occupy channels and maintain the user's attention while calls are being forwarded for processing at a remote site. During "abnormal" propagation conditions, those recorded announcements can wreak havoc over communications throughout a wide area. Operators utilizing these techniques

must employ the discipline to discontinue use of announcements during periods of abnormal propagation conditions.

MMR supports enhancing NB-DP operations to permit higher speed data operations. It is important to achieve increased data speeds without degradation of service on adjacent channels.

The Commission's proposal to eliminate demonstration of channel-loading in justification of additional channel requirements is at odds with the Commission's regulation of virtually every other mobile radio service. While perhaps some additional flexibility in VHF public coast station channel assignments may be warranted, the Commission should not abandon channel loading standards altogether.

Finally, MMR urges the Commission to extend its proposed elimination of commercial operator license requirements for coast station radiotelephone service to telegraphy and all other maritime services. Advances in system design and technology moots the need for any operator licensing domestically.

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COMMENTS OF MOBILE MARINE RADIO, INC.

Mobile Marine Radio, Inc. (MMR) respectfully submits its comments to the Commission responsive to the Further Notice of Proposed Rulemaking in the Commission's review and modernization of the regulations governing the maritime mobile telecommunications services.[1]

I. Statement of Interest.

Mobile Marine Radio is an international Commercial Mobile Radio Service (CMRS) provider, rendering MF/HF radiotelephony and radiotelegraphy services worldwide and VHF public coast station service along both the Gulf Coast offshore the State of Alabama and the Alabama river system. MMR was a participant in the Commission's initiating phase of this proceeding and, as the leading provider of maritime

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[1] 20 FCC Rcd 5725 (1995).

public correspondence services in the United States, MMR has a substantial interest in this proceeding.

II. Comments.

The Commission has advanced a number of specific proposals, and invited comments on other topics, organized under fourteen (14) topic headings in this Further Notice. MMR will respond to the proposals and request for comments in the order set forth in the Further Notice.

A. Digital Selective Calling (DSC).

The Commission proposes to establish minimum DSC requirements on all internationally standardized maritime radiotelephone equipment, MF, HF and VHF, manufactured or imported on or after February 1, 1997, or marketed or installed in vessels on or after February 1, 1999. The Commission further proposes to permit, on an elective basis, the use of any "open" or non-proprietary selective calling protocol on maritime public correspondence channels and on maritime "control" frequencies. The Commission is not proposing the mandatory use of the internationally standardized DSC for other than distress alerting.

As contemplated in the Further Notice, DSC will be relegated strictly to a distress alerting function. DSC would not be required to be integrated into the operational channels and switch from either distress alerting or calling

to a communications channel. Thus, once the distress alert is passed by the DSC unit, the shipboard personnel and the shore-based receiving facility are left to their own devices to determine whether and how to communicate with regard to the nature of the distress alert and the appropriate remedial or safety action.[2]

With the foregoing in mind, MMR supports the mandatory dates set forth in paragraph 10 of the Further Notice. MMR respectfully submits, however, that the Commission must go beyond mandating DSC solely for distress alerting.

VHF DSC requirements: For VHF band equipment, increased DSC finesse should be mandated, to enhance safety as well as selective calling capabilities on private and public correspondence channels. The advantage of reliable silent signalling and quiet watches is significant. It is a privilege that we in an office environment enjoy at our desk and take for granted.

DSC is the only standardized maritime selective calling system or procedure. Ross Engineering has demonstrated that DSC can be implemented in a technologically and cost-

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[2] Accord, "Emphasizing the Safety and the Global Maritime Safety System Through Optimizing the Options," George X. Tsirimokos, presented to Radio Technical Commission for Maritime Services, Annual Assembly, May, 1995: "GMDSS is, in this respect, a misnomer; it should be GMDS, a system for alerting Distress, not for abetting Safety." Written presentation at p. 4.

efficient manner.[3] There is a high degree of mobility in the boating community that utilizes VHF service; and those users are entitled to a minimal common ground protocol which provides interoperability anywhere along the coastlines and river networks in which they may be operating. Declination by the Commission to mandate the installation of DSC for communications as well as for distress alerting in the VHF service is an open invitation to anarchy and the further degradation of VHF maritime communications.[4]

MF and HF DSC requirements: With regard to MF and HF DSC service, unlike the VHF DSC service, multiple frequency bands with multiple regional frequencies in MF/HF bands require extended equipment involvement capabilities under compulsory scenarios. Therefore, while not mandating full DSC capability in MF and HF equipment, MMR believes that regulatory *encouragement* of voluntary safety and general purpose ancillary outfitting aboard ship is necessary and appropriate. Commission involvement to this end is necessary in that manufacturers are leery of Coast Guard vacillation. Moreover, manufacturers will be slow to

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[3] Other manufacturers undoubtedly also will produce compliant equipment. NMEA Standard 0183 allows DSC to be used for full functionality, i.e., public correspondence, operational and safety communications as well as distress altering.

[4] MMR would not prohibit other, open signalling systems from being utilized, so long as equipment subject to the compliance dates set forth in paragraph 10 is outfitted and has the capability of operating on DSC.

implement full DSC capability on a purely discretionary basis inasmuch as involvement at this time could mean increased manufacturing costs, and losing a price advantage to a competitor could bring a decrease in sales and most certainly would have financial consequences. DSC capabilities, once nudged, could bring stability, and DSC with its advantages then would stand forth on its own merits and complement participants handsomely.

To this end, MMR has invested substantially in DSC in its Public Coast facilities and has on site HF and VHF DSC Thrane & Thrane systems, including augmented Necode DSC MF and HF scanners interfaced to operational receivers.[5]

MMR believes the benefits are worthwhile. For the ship user, DSC provides quiet watches, reliable demand access of selected stations, ready access of public coast facilities, credible accounting identification, reduction of call completion costs, and a lower rate opportunity for the user.

For the shore facility it may be the first time in the history of rediscovering radio that "common ground" exists on other than a Safety and Distress channel. The possibilities for the completion of shore originated ship destined traffic in a timely manner is exciting indeed. The

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[5] The DSC-GP frequencies need to be assigned channel numbers to fit in with microprocessor control systems, as well as to eliminate manual frequency entering in the field. The relevance of assigned, center, suppressed, emitted, offset frequencies, etc., may overwhelm even an FCC field inspector.

ability to establish contact with vessels of any flag or nationality via DSC on demand places MF/HF on a more level playing field with satellite for shore-ship accessibility, at much lower costs to the user.

Finally, MMR reiterates the importance that any selective calling system which may be utilized first must be fully DSC-compatible, and that any system used additionally must be transparent to the DSC protocols, be "open" to all parties, and the technology must be readily available at an economically feasible price. This is mandated by Section 322 of the Communications Act, which requires maritime public coast stations to exchange traffic with "any" ship station, and further requires that the "exchange of radio communication shall be without distinction as to radio systems or instruments adopted by each station." 47 U.S.C. Section 322.

B. Automatic Interconnection with PSTN.

MMR fully supports the Commission's proposal to permit automatic interconnection of vessels through a public coast station to the public switched telephone network, without operator intervention. The Commission's approach to leaving staffing requirements to the discretion of the coast station operator reflects a proper analysis and judgment that coast station operators will provide such staffing as may be

appropriate to meet operational requirements and that micromanagement by Commission regulation is unnecessary.

Notwithstanding the foregoing, MMR strongly believes that those providing automatic interconnection must be responsible for active station management to prevent interference to other licensees. This arises from the fact that there are two prevailing conditions which characterize the operation of VHF Public Coast stations located on the Gulf Coast and in the southern half of the continental United States, if not elsewhere as well: "normal" and "abnormal." These may be defined, as follows:

> NORMAL: Absent any anomalies of propagation, signals behave in a manner as prescribed under 47 CFR Part 80, Subpart P.
>
> ABNORMAL: Wherein propagation abnormalities (skip)[6] exist and, consequently, the standards established to assist in determining coverage protection criterion (Subpart P) no longer are applicable.

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[6] Skip includes ducting, Sporadic E, and reflections from a stalled-out cold front (temperature inversion). While skip cannot be predicted with precision as to its arrival, frequency of occurrence, duration or geographic influence as to any given occurrence, it is well-documented that skip conditions occur on a repeated basis.

Skip causes numerous false squelch activations, including multiple simultaneous accessing of various system operators' control points. This results from maritime VHF stations being "open squelch" systems, and identical channels having been reassigned based on a mileage terrain separation standard which does not recognize skip conditions.

There are two operative scenarios for enhanced call processing for interconnection with the public switched telephone network. These scenarios and the effect of the Normal and Abnormal propagation conditions on these scenarios are, as follows:

> SCENARIO 1: MMR contemplates that the proposed regulation will allow a vessel operator to dial directly any telephone number within the United States or abroad which may be reached through the public switched network, from a keypad associated with the vessel's radiotelephone. Billing data would be recorded automatically and manual operator intervention would be unnecessary.
>
> SCENARIO 2: Operator-assisted and/or manual service could be accommodated by allowing automated

answering and pre-recorded Station ID by equipment located at remote public coast stations; and upon squelch opening, the station would dial a pre-specified PSTN telephone number associated with that station's central control point telephone switchboard.[7]

MMR has no problems with Scenario 1 under Normal or Abnormal propagation conditions. While interference may occur under Abnormal conditions, the transmission is that which is minimally necessary for call completion.

MMR has no problems with Scenario 2 under Normal conditions.

Scenario 2 under Abnormal conditions poses the unreasonable risk of subjecting vessel stations within skip interference range to harmful interference consisting of a constant barrage of pre-recorded messages designed to occupy the channel while the call is in set-up by the operator position.[8] Considering the nature of skip interference, this interference will be received from multiple stations simultaneously. Moreover, skip interference is not selective; it assaults all vessels within the skip

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[7] MMR is aware of one major VHF public coast station licensee that currently operates in this fashion.

[8] Such messages may be of the nature of: "The operator is busy; please stand by;" music, advertisements of the station's service, etc.

signal's range -- regardless of the coast station with which a vessel may be in contact.

It is this latter situation the Commission must address. The Commission must affirm the operator's explicit obligation to maintain direct control over its VHF transmitters, see, 47 C.F.R. §§ 80.87 and 80.92, with the capability to place its recorded announcements in "standby" or "off-line" status during Abnormal conditions.

Under Abnormal conditions for carriers operating under Scenario 2, MMR would endeavor to explore operating accommodations in an effort to assure that all maintain some degree of operability during times when skip makes operation chaotic and unreliable for the user/consumer. The ultimate objective is to assure the user receives timely and quality radiocommunications service, regardless of which facility the boat operator elects to employ.

C. Narrow-Band Direct-Printing (NB-DP).

The Commission proposes to permit permissive narrow band data under the Part 80 rules, and pursuant to CCIR Rec. 625, under certain conditions.

MMR believes the Commission and the maritime community no longer may be concerned with baud alone, but should look forward to clarification and understanding of the rules needed to qualify bit, baud, byte, character and symbol scenarios. The understanding of the relationship of

necessary bandwidth to authorized bandwidth criterion is significant. MMR is opposed to any course of rule interpretation which would allow data development to dictate changes to channel allocations.

The purpose in developing "super bit" technology for use in a shared band with existing systems would appear negated if the necessary bandwidth is permitted to approach too close to the channel bandwidth edges. Disregard for current receiver selectivity capabilities would allow adjacent channel interference that then could disrupt communications of existing systems.

Some digital techniques develop very steep skirted waveforms, effectively fitting into the channel width like a glove. By that same token, others do not; rather, they essentially may resemble an F1B emission waveform.

The spectrum guard utilized between channeling at the present time is the "non-written" part of the 47 C.F.R. § 80.205(a) chart columns wherein emission designators-authorized bandwidths are enumerated. Operational waivers to the rules recently granted by the Commission appear to evidence the temptation to ignore sufficient guard spectrum which is needed to afford existing receivers an opportunity for adequate working selectivity response to take place so as to permit sharing of adjacent maritime channels without a high probability of harmful interference. There is no surplus of spectrum in existing NB-DP channels.

Can digital radio techniques contribute to realization of ASCII codes, with higher bit rates and throughput, and maintain at least the current level of channel integrity? MMR strongly feels they could, but it requires some TLC to help get there.

Therefore, MMR proposes that a suitable narrow band digital standard for NB-DP coexistence may lie in protection as could be given by an emission designator/necessary bandwidth of 0.4 kHz (47 C.F.R. § 80.205(a)) at the 6 dB point, with an emission designator of 400H___ and clarification of the treatment under the rules to be given to the "J" character portion thereof under Section 80.211(f).[9]

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[9] Within the proposed rules, Appendix B to the Further Notice, the Commission proposes to add footnote 5 to the J2B emission. Query: Whether this should be a "D2D" emission? See, 47 C.F.R. § 2.201(c)(4).

Footnote 5 references NB-DP radiotelegraph and data transmission for communications with public coast stations. MMR requests the Commission to clarify the type acceptance standard for the J2B/D2D emission, and particularly whether § 80.211(f) governs. MMR raises this issue by virtue that under a "J" emission, the carrier emission is treated as a suppressed carrier, defined as being 40 db down or greater, rather than as a spurious emission wherein it would be defined as being 43 db plus 10 times the log to base 10 mean power. For a SSB radio, e.g., 150 watt RF output, a normal carrier leakage signal exists outside of the NB-DP authorized bandwidth (500 hertz). Under § 80.211(f) treatment, this same referenced suppressed carrier signal for the 150 watt radio would be treated as a "spurious" emission and would be required to be at least 65 db down, as opposed to § 80.211(a) wherein 40 db down or greater would suffice.

In conjunction with Type Acceptance (47 C.F.R. § 80.211(f)), manufacturers of NB-DP equipment should demonstrate that adequate narrow bandwidth selective filters are in actual use[10] in the associated RF circuitry, so as to afford selectivity constrains for transmit, as well as receive. In this manner, the best possible opportunity for mutual operability and adjacent channel protection can be achieved. This rationale could permit new technology to adjust appropriately to current channeling and a narrow band digital scenario.

The Commission proposes that all NB-DP equipment be capable of, but not limited to, operation in accordance with CCIR Rec. 625. MMR fully concurs. MMR questions whether the language "capable of" is strong enough to assure non-diminished NB-DP accessibility as digital compatibility comes aboard. As with DSC, all NB-DP or data schemes must be "open" architecture.

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[10] MMR recently tested in our laboratory several FCC Type Accepted radios acquired on the open market, with factory representative supplied and installed NB-DP option. These units possessed narrow selective filters; however, these filters were not available to the NB-DP RF transmit path under prom control. Further, these radios are sold without NB-DP modems. The transmitter audio is accessible to any do-it-yourself person. We do not hereby necessarily imply that these units are in non-compliance or that the radio does or does not meet current type acceptance standards. We do imply that the only constraint for misapplied audio is the SSB (3.0 kHz) RF filter and its partial suppression of the carrier frequency 1700 hertz displaced in the spectrum. The potential for causing harmful interference for up to 6 NB-DP channels is to MMR very real.

D. Private Carriers and Exclusivity.

The Commission, consistent with MMR's comments in the initial phase of this proceeding, has concluded that the maritime frequency allocations are insufficient to accommodate private carriage and exclusive use of channels by private coast stations. Moreover, as observed by the Commission, Section 332 of the Communications Act moots the private carriage classification.

E. Permissible Communications.

The Commission proposes to permit public coast stations to provide service to land vehicles, on a secondary basis. MMR continues to support this proposal. Moreover, the ancillary service should not be limited to land vehicles, but should be extended to any transmitter type accepted for service under Part 80, Part 90 or Part 22,[11] including, for example, hand-held units. Full flexibility should be accorded to public coast stations, to the same degree that mobile services licensed under Part 22 or Part 90 are able to serve a broad class of user.

The Commission further proposes to delete the additional channel justification requirement at Section 80.371(c) of the Communication's rules. The Further Notice states that the procedure "is out-of-date in light of the burdensome procedures required, and the fact that it is

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[11] See, Further Notice at ¶ 23.

based on the antiquated notion that public coast stations need only one or two channels to serve their market competitively."[12] The Commission invites comments not only on the proposal to remove the justification requirement, but also on a substitute standard.

MMR fails to understand the premise that the additional channel justification requirement is out-of-date and based upon an antiquated concept. By comparison, SMR licensees must demonstrate channel-loading to receive channels in addition to the original allotment; and the same is true for licensees under the Part 22 mobile services.[13] Granted, SMR licensees receive an initial allotment of five (5) channels; however, there are 280 channels available for SMR service as contrasted with nine (9) for public coast station service; and the technology available to SMR operations justifies a larger frequency block for trunked operations. The notion of foregoing the channel justification requirement raises the potential for frequency-grabbing for the purpose of repackaging and selling maritime public coast station operations due to their spectrum potential rather than as a function of the maritime service rendered.

The proposal to forgo loading standards further ignores the prospect of channel-splitting, and the consequential

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[12] Further Notice at ¶ 24.

[13] See, 47 C.F.R. §§ 90.622(c), 90.631(c), 22.516.

creation of two channels for every one in existence today.[14] Notwithstanding, MMR recognizes that there may be merit in having a stand-by channel when the primary operating frequency is in service. Under that premise, MMR suggests that the initial complement of VHF public coast station frequencies should be two channels, with the additional channel justification being imposed thereafter. This change would allow each single-channel station to obtain an additional channel without specific justification.

An element of Section 80.371(c) which does require revision, if not rescission, is the statement that "an application for a frequency which overlaps by 70% or more the coverage area of a frequency already authorized for use by a station licensed to the same applicant ... will be considered an application for an additional frequency." This provision prohibits flexibility, such as a fill-in station. Topographical considerations frequently preclude achieving a reliable service near the edge or in particular areas of a station's contour. The Commission's overlap provision serves to prohibit such fill-in or low-power, cellularized stations. Accordingly, MMR urges the Commission to rescind this provision, or at the very least to modify it to deem the frequency an additional channel for the existing station only where the overlap extends to more

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[14] See, discussion at H. Narrowband, Further Notice at ¶ 29.

than 70% of the combined service areas of the present and proposed stations together.

F. Intra-Service Frequency Sharing.

MMR has no objection to private coast station licensing on 2 MHz maritime frequencies. Necessarily, any such private coast operator will be required to maintain a watch as required by Section 80.301(b) of the rules. MMR supports the Commission's tentative conclusion that public coast station operational requirements and congestion in the 4 MHz band make sharing with private coast stations unavailable. The Commission's own licensing records necessarily demonstrate the lack of availability of 4 MHz channels. MMR's 4 MHz band channels are among its most active radiotelephony frequencies due to their favorable propagation characteristics and the large vessel population in the Gulf of Mexico and Caribbean.

G. Trunking.

Trunking is an operational technique utilized in the Private Land Mobile Radio Services. Trunking has been employed as the Commission has opened new frequency bands for operation, most notably 800 MHz, where the frequencies are sufficient to support a trunked operation and the opening of the band permits introduction of equipment incorporating trunking technology. Overlaying trunking onto

the current maritime coast station assignment pattern is impractical due to the limited number of frequencies and the embedded equipment base. The policy regarding proprietary protocols for trunked systems is the same as addressed in Section A above concerning DSC.

H. Narrow-Band.

MMR supports narrow-banding to a 12.5 kHz standard. The technology is available, and the spectrum utilization requirements support channel-splitting in the VHF maritime band. Moreover, MMR encourages the Commission to permit 6.25 kHz channels on an elective basis, subject to public coast station operators being required to render service to vessels operating in accordance with the international standards (presumably 12.5 kHz, following adoption at WARC-97).

I. Maritime Mobile Sharing of Private Land Mobile Frequencies.

The Commission in the First Report and Order in this proceeding allowed land mobile sharing of maritime public coast station frequencies. Reciprocal sharing similarly is warranted. Moreover, the Commission has just ordered narrow-banding in the private land mobile services;[15] and that narrow-banding should create increased sharing

[15] PR Doc. 92-235, Report and Order released June 23, 1995.

opportunities. Public coast and vessel stations operating on frequencies shared with the private land mobile services should be required to operate at the 12.5 kHz bandwidth.

K. HF Automatic Link Establishment.

The Commission invites comments on technical aspects of automatic link establishment (ALE) through the use of linear frequency modulated continuous wave modulation technology. MMR recognizes ALE in its current form to be a proprietary, expensive and extensive arrangement, but offers no objections, as long as such ALE service is on a non-interference basis (NIB) to the service of others. MMR respectfully notes that as such systems gain acceptance, more and more such systems will be on the air. Consequently, the propensity for interference will increase. The current and proposed ALE systems all entail error detection and correction or otherwise offer "managed care" to digital emissions to negate any actual errors, even though a momentary glitch may exist.

Other applications exist for ALE, e.g., communication aids; and when they appear, they also should be allowed to be accommodated, subject to a NIB approach.

M. Other Issues.

(i) Coast station operator licensing.

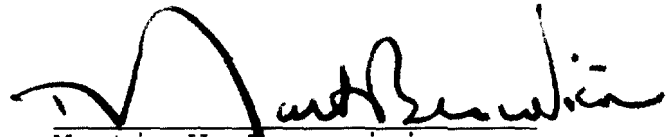
MMR fully supports the Commission's proposal to eliminate the requirement for coast station radiotelephone operators to hold commercial operator licenses. MMR fails to understand why the Commission distinguishes radiotelephone from radiotelegraphy stations with regard to operator licensing. With current technology, NB-DP and Morse telegraphy operation require the ability to type and the same technical level as required for radiotelephony operation. Moreover, with the GMDSS, there is no requirement from a distress standpoint to be able to copy Morse telegraphy; and in any event, computers today decipher Morse code, just as they receive and process NB-DP signals. Indeed, since 1978, maritime public coast stations have operated under a Commission interpretation allowing a T-3 level of operator to perform all of the operating duties (excluding repair or tuning of transmitter equipment) for Morse telegraphy service. The Commission's rationale for elimination of operator licensing for radiotelephony coast stations accordingly applies with equal force to radiotelegraphy operations.

* * *

Mobile Marine Radio, Inc. commends the Commission for the thorough review and the proposed updating of the maritime service rules. MMR urges the Commission to move with expedition to conclude this rulemaking and enhance the operational flexibility of maritime public coast station operators.

WHEREFORE, THE PREMISES CONSIDERED, Mobile Marine Radio, Inc. urges the Federal Communications Commission to adopt the rule changes to provide enhanced operational flexibility in the maritime mobile services as set forth in the foregoing comments.

Respectfully submitted,



Martin W. Bercovici
Keller and Heckman
1001 G Street, N.W. Suite 500W
Washington, D.C. 20001-4545
(202) 434-4200

Attorney for
Mobile Marine Radio, Inc.

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